DIAGNOSES OF PANICUM SPECIES (GRAMINEAE)
HAWAIIAN PLANT STUDIES 149

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The following Hawaiian species of Panicum are novelties. Unless otherwide located, all the types are in the Bishop Museum, Honolulu.

Panicum annuale sp. nov. (sect. Depauperata).
Planta annua 7-12 cm alta caespitosa est, vaginis pilosulis, laminis 1 mm latis, spiculis 1.5-1.8 mm longis, gluma exteriori 1.5-1.8 mm longa glabra. Typus: Maui I., Kahakuloa, R. Sylva.

P. assurgens sp. nov. (sect. Depauperata).
Planta annua 36 cm alta est, vaginis pilosulis, laminis 3-4 mm latis pilosulis, spiculis 1.5-2 mm longis glabris, gluma exteriori 1.5-2 mm longa lanceolata. Typus: Lanai I., Kaumalapau Hbr., R. Hobdy 1,344.

Panicum baltodes sp. nov. (sect. Virgata), Figs. 1, 2.
Diagnosis Holotypi: Planta perennis subcaespitosa 15 cm alta est, rhizomatibus pluribus, vaginis 10-20 mm longis pilosis, panicula 3-4 cm longa, ramis puberulis, spiculis 2-2.3 mm longis glabris 2-floriferis, gluma secunda 1.9 mm longa 7-nervosa, lemma 2 mm longa 7-nervosa. Typus: Typus: Kauai I., Alākai Swamp, v. Balgooy 4,213 (L), isotype (BISH).

Panicum bifurcatum sp. nov. (sect. Depauperata).
Planta annua 37 mm alta est, vaginis pilosis, laminis 2-2.5 mm latis involutis pilosis, spiculis 2.3-2.5 mm longis glabris, gluma exteriori 2.3-2.5 mm longa lanceolata. Typus: Molokai I.,Pohakumauliuli, N. Pekelo Jr. 31.

Panicum conjugens Skottsb., Acta Horti Gothob. 15: 298, fig. 106, 1944.
Lectotype: Kauai, bog along trail from Lihue Makanoi toward Kilohana, 13/8/38, O. Selling 2,886 (BISH).
Skottsberg published this species based on two and a possibel third collections. The number 2,886 is here chosen as the lectotype.

Panicum Cookei sp. nov. (sect. Depauperata).
Diagnosis Holotypi: Planta annua perennisve 60 cm alta est, culmis 30 cm altis pilosulis, vaginis pilosis, laminis 4 mm latis planis infra pilosulis, paniculis 15-20 cm longis ramis pilosulis, spiculis 3-3.3 mm longis lanceoloideis glabris, gluma exteriori longissima 3-nervosa. Typus: Molokai I., Kaunakakai, E. Y. Hosaka 1,861.

Panicum ekeanum sp. nov. (sect. Turfosa). Fig. 3.

Diagnosis Holotypi: Planta perennis caespitosa est, culmis 6-7 cm altis, glabris, vaginis 4-7 mm longis marginibus apicalibus ciliolatis, laminis 0.8-1.3 mm latis supra in basi pilosulis, racemis 2-5-floriferis, pedicellis 2-3 mm longis pilosulis, spiculis 1.8-2.3 mm longis, gluma exteriori 0.5-0.6 mm longa, ovata, gluma interiori 1.8-2.3 mm longa elliptica acuta 7-nervosa. Typus: Maui I., Mt. Eke, O. Degener 10,830.

Panicum furtivum sp. nov. (sect. Depauperata).

Diagnosis Holotypi: Planta annua 11-19 cm alta est, vaginis 3-4 cm longis, laminis 2-3 mm latis, pilosulis, spiculis 1.7-1.9 mm longis, gluma exteriori 1.7-1.9 mm longa lanceolata. Typus: Hawaii I., Kealakahiki Pt., W. Char 78,079.

Panicum Hobdyi sp. nov. (sect. Turfosa), Figs. 4, 5A.

Diagnosis Holotypi: Planta perennis caespitosa est, culmis 5-10 cm altis, vaginis 3-10 mm longis glabris, laminis 0.8-1 mm latis involutis supra pilosulis, inflorescentia 7-15 mm longa pilosula 1-4-florifera, spiculis 1.9-2.3 mm longis gluma exteriori 0.8-1.2 mm longa ovata, 3-nervosa. lemma fertili 1.7 mm longa 3-nervosa. Typus: Maui I., Eke trail, R. Hobdy 707.

Panicum honokowaiense sp. nov. (sect. Monticola?), Figs. 5B, 6.

Planta perennis lignosa est, culmis 70 cm longis decumbentibus glabris, vaginis 3-6.5 cm longis glabris, laminis 7-11 mm latis , paniculis 22 cm longis, spiculis 1.6-1.8 mm longis lanceoloideis glabris, gluma exteriori 1.6-1.7 mm longa lanceolata 5-nervosa, illa interiori 1.8-1.9 mm longa 7-nervosa. Typus: Maui I., Honokowai, R. Hobdy 777.

Panicum infraventale sp. nov. (sect. Turfosa), Fig. 7.

Planta perennis caespitosa est, vaginis subglabris, laminis 1.4-4.5 mm latis subglabris, spiculis 1.5 mm longis ellipsoideis glabris, gluma exteriori 0.6 mm longa. Typus: Kauai I., Kahoaluamanu, C. N. Forbes 402.K.

Panicum kahiliensis sp. nov. (sect. Turfosa?).

Diagnosis Holotypi: Planta perennis caespitosa30-38 cm alta est, vaginis ciliatis, laminis 4-5 mm latis, spiculis 2.5-3 mm longis ellipsoideis glabris, gluma exteriori 1 mm longa ovata. Typus: Kauai I., Kahili Mt., B. C. Stone 1,654.

Panicum kahoolawense sp. nov. (sect. Depauperata).

Diagnosis Holotypi: Planta annua 6-8 cm alta est, vaginis subglabris, laminis 1-1.2 mm latis ciliatis et villosis, spiculis 1.2-1.3 mm longis ellipsoideis, gluma exteriori 1.2-1.3 mm longa in apice puberula. Typus: Kahoolawe I., L. W. Cuddihy 343,

Panicum kanaioense sp. nov. (sect. Trichoidea).
Diagnosis Holotypi: Planta annua 10 cm alta est, vaginis pilosis, laminis 3-3.5 mm latis glabris, spiculis 1.8-2 mm longis pilosis, gluma exteriori 1.8-2 mm longa. Typus: Maui I., Kanaio, R. Hobdy 1,273.

Panicum kaonohuaense sp. nov. (sect. Depauperata).
Diagnosis Holotypi: Planta annua 50 cm alta est, vaginis pilosis, laminis 4-5 mm latis infra villosis, spiculis 2.5-3 mm longis lanceoloideis glabris, gluma exteriori 2.5-3 mm longa. Typus: Maui I., Konohua Gulch, R. Hobdy 805.

Panicum Knudsenii sp. nov. (sect. Turfosa).
Diagnosis Holotypi: Planta perennis 16 cm alta est, vaginis pilosulis, laminis 4-7.5 mm latis ciliatis, spiculis 2-2.2 mm longis ellipsoideis glabris, gluma exteriori 0.7-0.8 mm longa. Typus: Kauai I., Alakai, C. N. Forbes 875.K.

Panium kokeeense sp. nov. (sect. Virgata).
Diagnosis Holotypi: Planta perennis glabra caespitosa 3-4 cm alta est, vaginis ciliatis, laminis 3-5 mm latis, spiculis 2-2.2 mm longis ellipsoideis, gluma exteriori 0.5 mm longa ovata. Typus: Kauai I., Kauluweki bog, A. C. Medeiros 502.

Panicum kukaiwaaense sp. nov. (sect. Depauperata).
Diagnosis Holotypi: Planta 3.5-9 cm alta pulvinosa breve vivens est, culmis vaginis laminis paniculisque puberulis, laminis involutis in aspecu 0.3-0.5 mm latis, paniculis 10-20 mm longis, spiculis 2-2.3 mm longis lanceolatis, gluma exteriori 2-2.3 mm longa et in 3 nervis microscopicis adpresse puberula. Typus: Molokai I., Kukaiwaa, R. Hobdy 2,184.

Panicum lihauense sp. nov. (sect. Depauperata), Figs. 8, 9.
Diagnosis Holotypi: Planta perennis 15-20 cm alta caespitosa est, basi dura incrassata, culmis glabris, vaginis 13-20 mm longis, laminis 2.5-2.7 mm latis ligulatis glabris arte involutis, panicula 8-12 cm longa subcompacta sparse puberula, spiculis 2.6-3 mm longis lanceoloideis pilosis, gluma exteriori 2.6-3 mm longa. Typus: Maui I., Lihau Peak, R. Hobdy 825.

Panicum lineale sp. nov. (sect. Virgata), Figs. 10, 11.
Diagnosis Holotypi: Planta perennis caespitosa est, culmis 48 cm altis glabris, foliis omnibus basalibus, vaginis 8,5-15 cm longis glabris except in apice pilosulis, laminis 5 mm latis involutis glabris, paniculis 22-34 cm longis scabris. spiculis 3.8-4 mm longis lanceolatis glabris, gluma exteriori 2 mm longa 5-nervosa. Typus: Kauai I., Kulanalilia, C. Christensen 324.

Panicum longivaginatum sp. nov. (sect. Virgata), Figs. 12, 13A.
Diagnosis Holotypi: Planta 62-71 cm alta fere omnino glabra licet oerennis est, vaginis 5-11 cm longis

marginibus superis pilose ciliatis, laminis 10-13 mm latis panicula 11-13 cm longa, spiculis 2.8-3.1 mm longis fusiformi-ellipsoideis, gluma exteriolri 0.3-0.6 mm longa flabellata. Typus: Hawaii I., Upper Waiakea Forest, R. Gustafson 2,400.

Panicum malikoense sp nov. (sect. Depauperata).

Diagnosis Holotypi: Planta annua 5-10 cm alta est, culmis glabris, vaginis 8-12 mm longis puberulis, laminis 1-1.2 mm latis involutis glabris, spiculis 1.8-2.1 mm longis lanceoloideis glabris, gluma exteriori 1.8-2.1 mm longa ovato-lanceolata. Typus: Maui I., Maliko Gulch, 12/19176, R. Sylva.

Panicum mokuleiaense sp. nov. (sect. Depauperata?). Figs. 14, 15.

Planta perennis est, culmis 21-30 cm altis in basi tuberosis, vaginis 4.5-6 cm longis glabris, laminis 3-4 mm latis involutis, panicula 9-12 cm longa, spiculis 2.3-3 mm longis lanceolatis villosis, gluma exteriori 2.5-3 mm longa. Typus: Oahu I., Mokuleia, H. St. John 23,692.

Panicum nephelophilum Gaud., var. levius var. nov. Figs. 13B, 15.

Diagnosis Holotypi: Planta perennis 68 cm alta est, caudici incrassata, vaginis 5-9 cm longis glabris, laminis caulinis 6-9 mm latis glabris, panicula 20 cm longa, spiculis 2-2.3 mm longis lanceolatis, gluma exteriori glabra alteram excedenti. Typus: Maui I., Paunau-Kuhua, H. St. John et al. 17,702.

Panicum ninoleense sp. nov. (sect. Depauperata).Fig. 17.

Diagnosis Holotypi: Planta annua 6-12 cm alta est, vaginis 1-2 cm longis puberulis, laminis 1 mm latis involutis supra pilosulis infra puberulis, panicula 1.5-3.5 cm longa, spiculis 1.5-2 mm longis pilosulis et villosis, gluma exteriori 1.5-2 mm longa lanceo-ovata. Typus: Hawaii I., Ninole, H. St. John et al. 23,954.

Panicum ooense sp. nov. (sect. Virgata).

Diagnosis Holotypi: Planta perennis 25-30 cm alta est, vaginis pilosis, laminis 6-7 mm latis ciliatis, spiculis 2.8-3 mm longis ellipsoideis glabris, gluma exteriori 0.6-1.3 mm longa ovata. Typus: Hawaii I., Puu Oo, C. N. Forbes 811.H.

Panicum pepeopaeense stat. nov. (sect. Turfosa).

P. imbricatum Hillebr., var. molokaiense Skottsb., Acta Horti Gothob. 15: 290, Figs. 52-66, 1944, non P. molokaiense Deg. & Whitney in Deg. 1936.

Lectotypus: Molokai I., Pepeopae, L. M. Cranwell 3,816 (GB).

Panicum simplex sp. nov. (sect. Depauperata).

Diagnosis Holotypi: Planta annua 25-36 cm alta est,

vaginis pilosis, laminis 2.4-3 mm latis pilosis, spiculis 2.2-2.5 mm longis glabris, gluma exteriori 2.2-2.5 mm longa. Typus: Lanai I., Hulupoe Bay, L. Stemmermann 3,711.

Panicum subglabrum sp. nov. (sect. Depauperatum).

Diagnosis Holotypi: Planta annua 58-"100" cm alta est, vaginis puberulis, laminis 5-8 mm latis puberulis, spiculis 3.3-4.2 mm longis lanceolatis glabris, gluma esteriori longiora. Typus: Lanai I., Poopoo Islet, R. Hobdy 1,357.

Panicum Sylvanum sp. nov. (sect. Depauperata, Fig. 18.

Diagnosis Holotypi: Planta annua 5-10 cm alta ramosa est, culmis minute puberulis, nodis puberulis, folinis caulinaribus multis, vaginis 6-11 mm longis minute puberulis, laminis 0.8-1.2 mm latis involutis minute puberulis, paniculis 15-25 mm longis pilosulis, spiculis 1.7-2 mm longis lanceoloideis glabris, gluma exteriori 1.7 mm longa elliptica 5-nervosa. Typus: Maui I., Maliko Bay, R. Sylva.

Panicum waikoloaense sp. nov. (sect. Depauperata), Fig. 19.

Diagnosis Holotypi: Planta annua 9-18 cm alta eramosa est, nodis pilose cinctis, folia basali ca 23 cm longo, 3-4 foliis caulinibus 25-35 mm longis, laminis 1.5-2 mm latis pilose ciliatis supra pilosis infra sparse pilosulis, paniculis 2-5 cm longis pilosulis, spiculis 1.5-2 mm longis ellipsoideis acutis in dimidio basali pilosulis, gluma exteriori 1.5-2 mm longa late ovata 3-nervosa. Typus: Hawaii I., Puu Hononaohae, K. M. Nagata 2,432.

Panicum waimeaense sp. nov. (sect. Turfosa).

Diagnosis Holotypi: Planta perennis caespitosa 4-5 cm alta est, culmis exsertis sparse pilosulis, vaginis sparse pilosulis, laminis 1-1.5 mm latis, racemis 4-7-floriferis, infra pilosulis supra puberulis, spiculis 1.7-1.8 mm longis glabris, gluma exteriori 0.4-0.5 mm longa hemisphaerica umbonata. Typus: Kauai I., Waimea, C. N. Forbes 1,707a.K.

Panicum Wilburi sp. nov. (sect. Turfosa), Figs. 20, 21.

Diagnosis Holotypi: Planta perennis 25-29 cm alta est, culmis glabris, foliis caulinaribus multis, vaginis internodos excedentibus pilose ciliatis, laminis 4-7 mm latis, paniculis 4-5.5 cm longis, spiculis 2.2-2.3 mm longis glabris, gluma exteriori 0.8-1 mm longa ovata 1-nervosa. Typus: Kauai I., Alakai Swamp, H. St. John et al. 23,053.

Panicum wiliwilinuiense sp. nov. (sect. Depauperata).

Diagnosis Holotypi: Herba perennis 15-20 cm alta est, vaginis glabris, laminis 5-9 mm latis glabris, spiculis 1.2-1.5 mm longis ellipsodeis, gluma exteriori 1.2-1.5 mm longa elliptica. Typus: Oahu I., Waialae Iki, Y. Kondo.

LEGEND

Fig. 1. *Panicum baltodes* St. John, *a*, habit, X 1; *b*, sheath and ligule, X 20; *c*, panicle, X 4.

Fig. 2. *Panicum baltodes* St. John, *d*, node and shoot. X 10; *e*, spikelet, X 5; *f*, 1st glume, X 15; *g*, 2nd glume, X 15: *h*, sterile lemma, X 15; *i*, fertile lemma, X 15; *j*, palea, X 15.

Fig. 3. *Panicum ekeanum* St. John, *a*, habit, X 1; *b*, panicle, X 4; *c*, sheath and ligule, X 5; *d*, basal leaves, X 10; *e*, spikelet, X 15; *f*, 1st glume, X 15; *g*, 2nd glume, X 15; *h*, lemma, X 15; *i*, palea and grain, X 15.

Fig. 4. *Panicum Hobdyi* St. John, *a*, habit, X 1; *b*, raceme, X 4; *c*, spikelet, X 15.

Fig. 5A. *Panicum Hobdyi* St. John, *d*, stem and sheaths, X 10; *e*, 1st glume, X 15; *f*, 2nd glume, X 15; *g*, sterile lemma, X 15; *h*, fertile, lemma, X 15; *i*, palea, X 15; *j*, pistil, X 15.

Fig. 5B. *Panicum honokowaiense* St. John, *k*, sheath and ligule, X 10; *l*, fertile lemma, X 15; *m*;palea, X 15.

Fig. 6. *Panicum honokowaiense* St. John, *a*, habit, X ¼; *b*, panicle branch, X 4; *c*, spikelet, X 15; *d*, 1st glume, X 15; *e*, 2nd glume, X 15; *f*,sterile lemma, X 15.

Fig. 7. *Panicum infraventale* St. John, *a*, habit, X 1; *b* sheath and ligule, X 10; *c*, sheath and ligule, X 4; *d*, raceme, X 4; *e*, spikelet, 15; *f*, 1st glume, X 15; *g*, 2nd glume, X 15; *h*, fertile lemma, X 15; *i*, palea, X 15; *j*, pistil, X 15.

Fig. 8. *Panicum lihauense* St. John, *a*, habit, X 1; *b*, panicle, X 4; *c*, 1st glume, X 15.

Fig. 9. *Panicum lihauense* St. John, *d*, sheath and ligule, X 10; *e*, sheath, ligule, and blade, X 10; *f*, spikelet, X 15; *g*, 1st. glume, X 15; *h*, fertile lemma, X 15; *i*, palea, X 15.

Fig. 10. *Panicum lineale*, St. John, *a*, habit, X ¼; *b*, spikelet, X 15; *c*, 1st glume, X 15; *d*, 2nd glume, X 15; *e*, sterile lemma, X 15; *f*, fertile lemma, X 15; *g*, palea, X 15.

Fig. 11. *Panicum lineale* St. John, *h*, sheaths and ligule, X 10; *i*, ligule, X 15; *j*, panicle branch, X 4; *k*, pistil, X 15.

Fig. 12. *Panicum longivaginatum* St. John, *a*, habit, X 1/3; *b*, panicle branch, X 4; *c*, spikelet, X 15; *d*, 1st glume, X 15; *e*,2nd glume, X 15; *f*, fertile lemma, X 15.

Fig. 13A. *Panicum longivaginatum* St. John, *g*, palea, X 15; *h*, pistil, X 15; *i*, blade base, X 10.

Fig. 13B. *Panicum nephelophilum* Gaud., var. *levius* St. John, *f*, 1st glume, X 15; *g*, 2nd glume, X 15; *h*, fertile lemma, X 15; *i*, palea, X 15; *j*, sheath and ligule, X 10.

Fig. 14. Panicum mokuleiaense St. John, a, habit, X 1; b, fertile lemma, X 15; c, pistil, X 15.

Fig.15. Panicum mokuleiaense St. John, d, sheath, ligule, and blade, X 10; e, panicle branch, X 4; f, spikelet, X 15; g, 1st glume, X 15; h, 2nd glume, X 15; i, sterile lemma, X 15.

Fig. 16. Panicum nephelophilum Gaud. var. levius St. John, a, habit, X 1/3; b, sheath, ligules and blades, X 10; c, panicle branch, X 4; d, spikelet, X 15; e, anther, X 15.

Fig. 17. Panicum ninoleense St. John, a, habit, X 1; b, sheath and ligules, X 10; c, sheath and ligules, X 10; d, panicle, X 4; e, spikelet, X 15; f, 1st glume, X 15; g, 2nd glume, X 15; h, sterile lemma, X 15; i, fertile lemma, X 15.

Fig. 18. Panicum Sylvanum St. John, a, habit, X 1; b, sheaths, X 10; c, sheath and ligule, X 10; d, panicle, X 4; e, spikelet, X 15; f, 1st glume X 15: g, 2nd glume, X 15; h, sterile lemma, X 15; i, fertile lemma, X 15; j, palea, X 15; k, anthers, X 15.

Fig. 19. Panicum waikoloaense St. John, a, habit, X 1; b, panicle branch, X 4; c, leaf and sheath, X 10; d, sheath and ligule, X 10; e, 1st glume, X 15; f, 2nd glume, X 15; g, fertile lemma, X 15; h, palea, X 15; i, grain, X 15; j, stamens, X 15.

Fig. 20. Panicum Wilburii St. John, a, habit, X ½; b, sheath and blade, X 10; c, 1st glume, X 15; d, 2nd glume, X 15; e, sterile lemma, X 15; f, fertile lemma, X 15.

Fig. 21. Panicum Wilburii St. John, g, panicle branch, X 4; h, spikelet, X 15; i, palea, X 15; j, stamen, X 15.

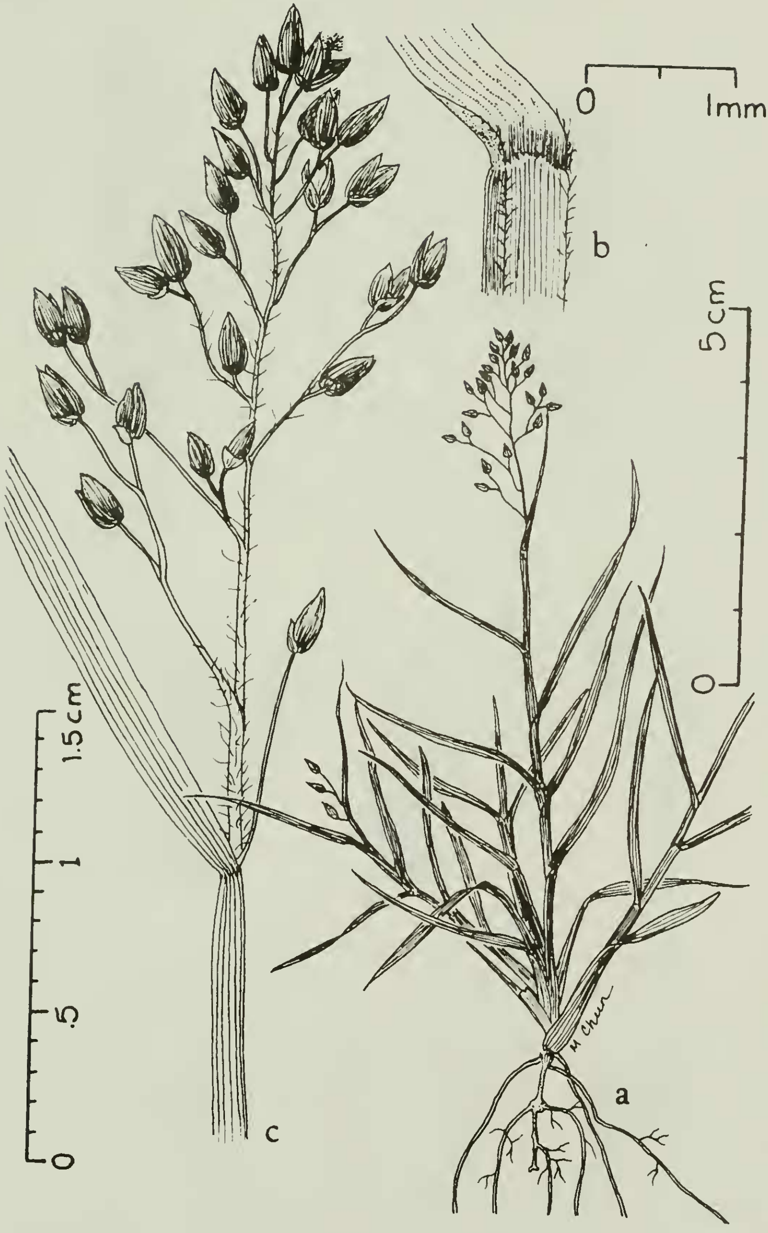


Fig. 1. Panicum baltodes St. John

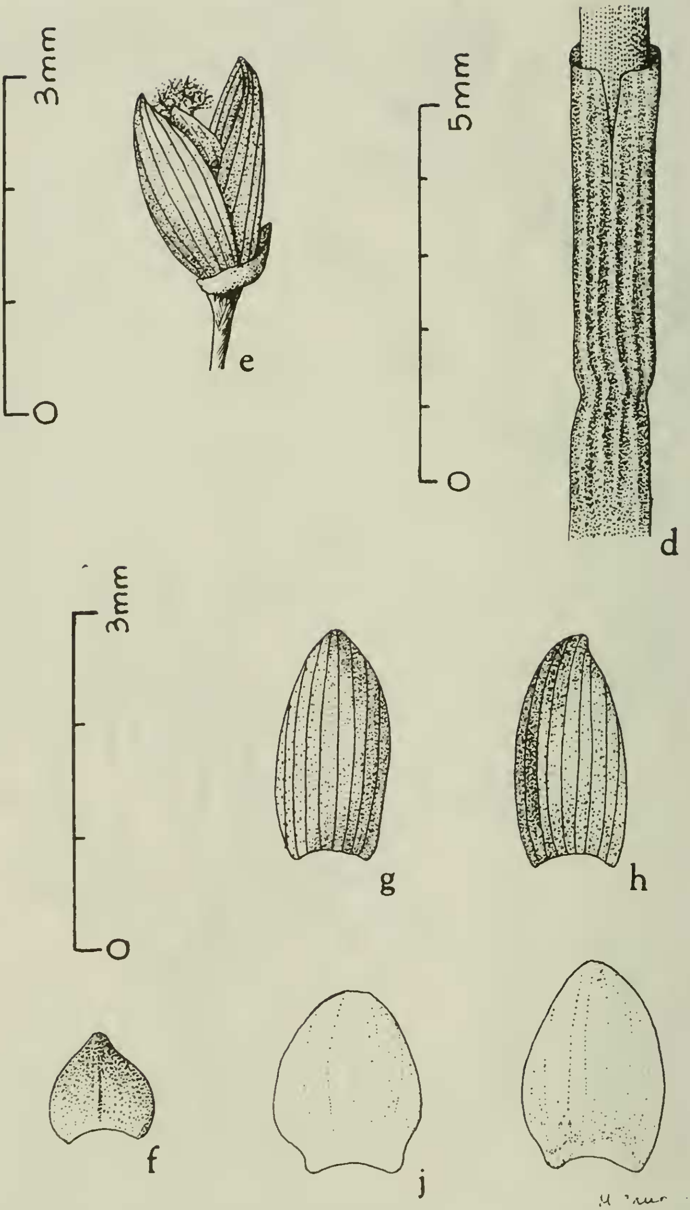


Fig. 2. Panicum baltodes St. John

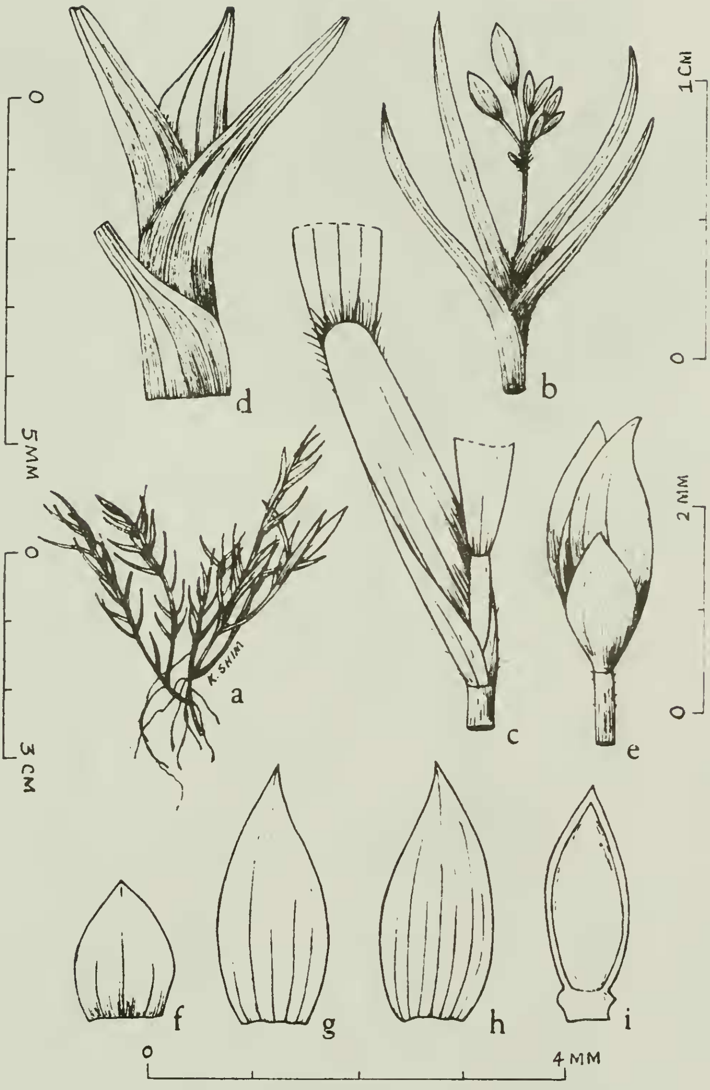
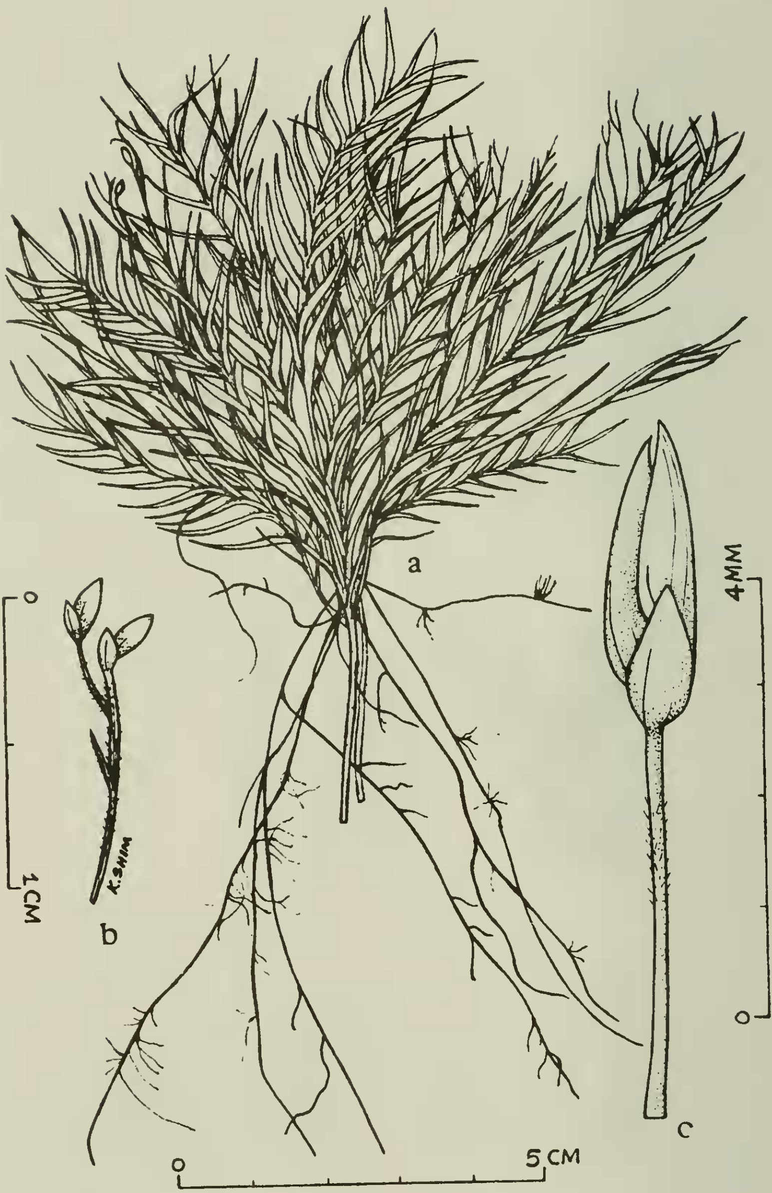


Fig. 3. Panicum ekeanum St. John



Fig, 4, Panicum Hobdyi St. John

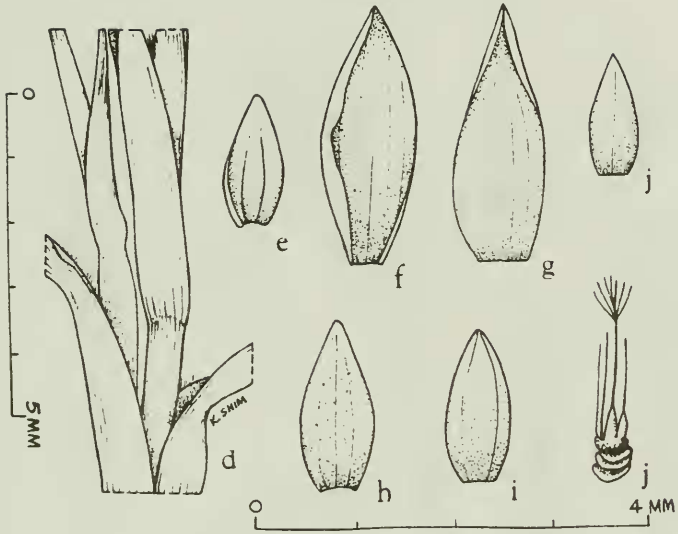


Fig. 5A. Panicum Hobdyi St. John

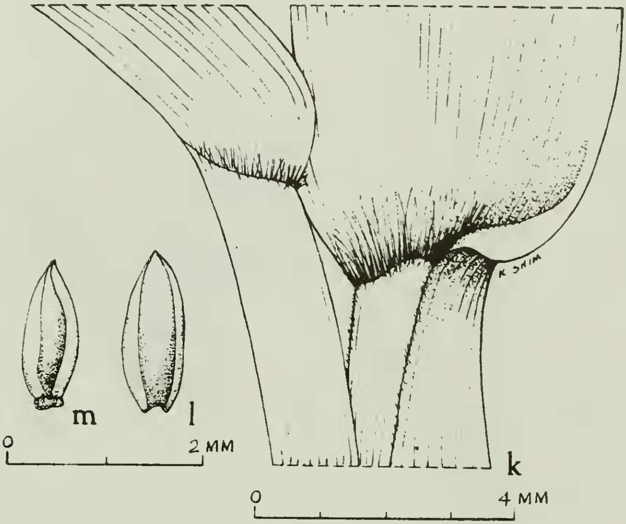


Fig. 5B. Panicum honokowaiense St. John

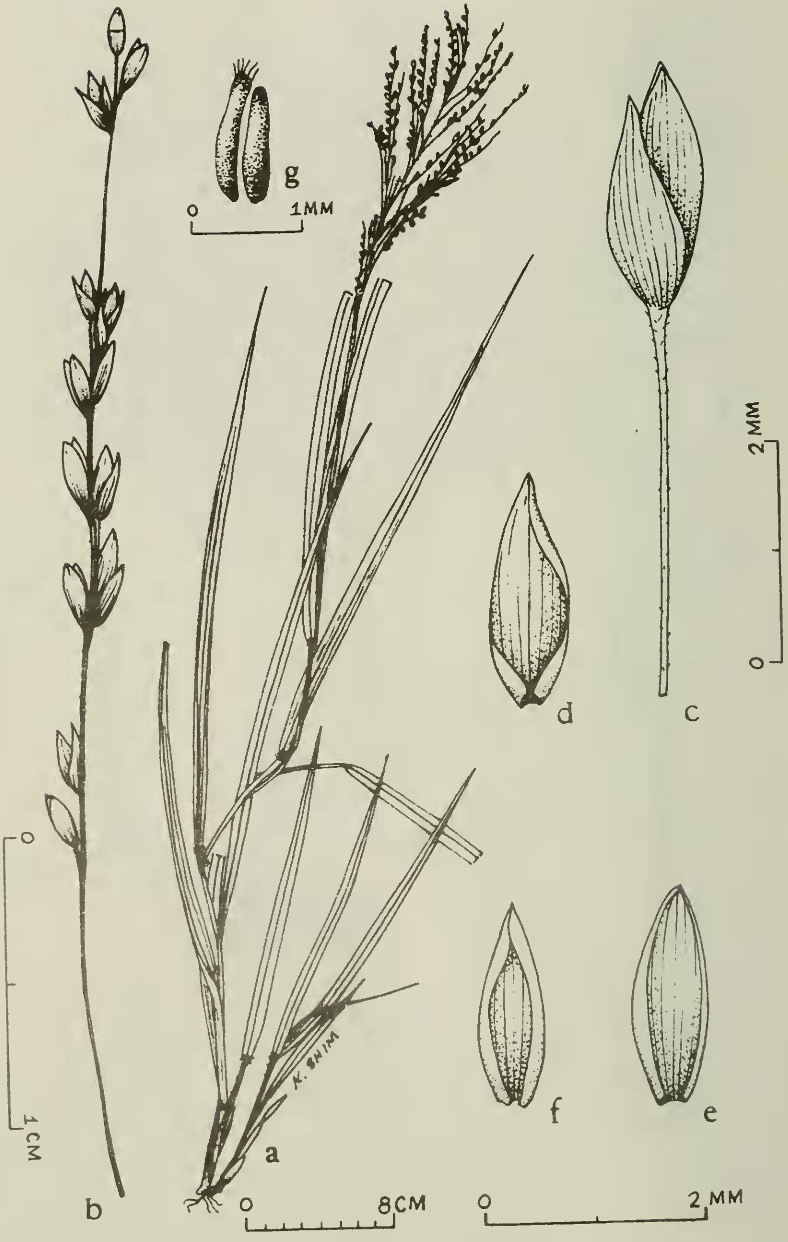


Fig. 6. Panicum honokowaiense St.John

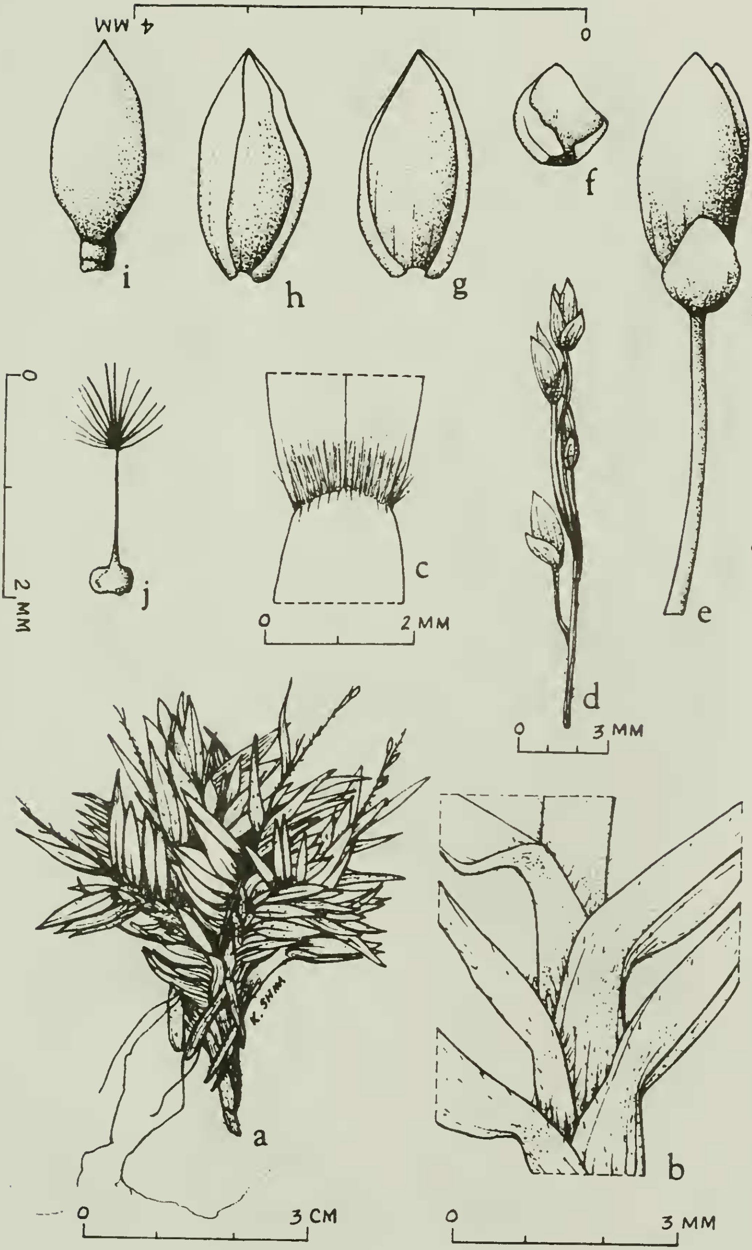


Fig. 7. Panicum infraventale St. John



Fig. 8. Panicum lihauense St. John

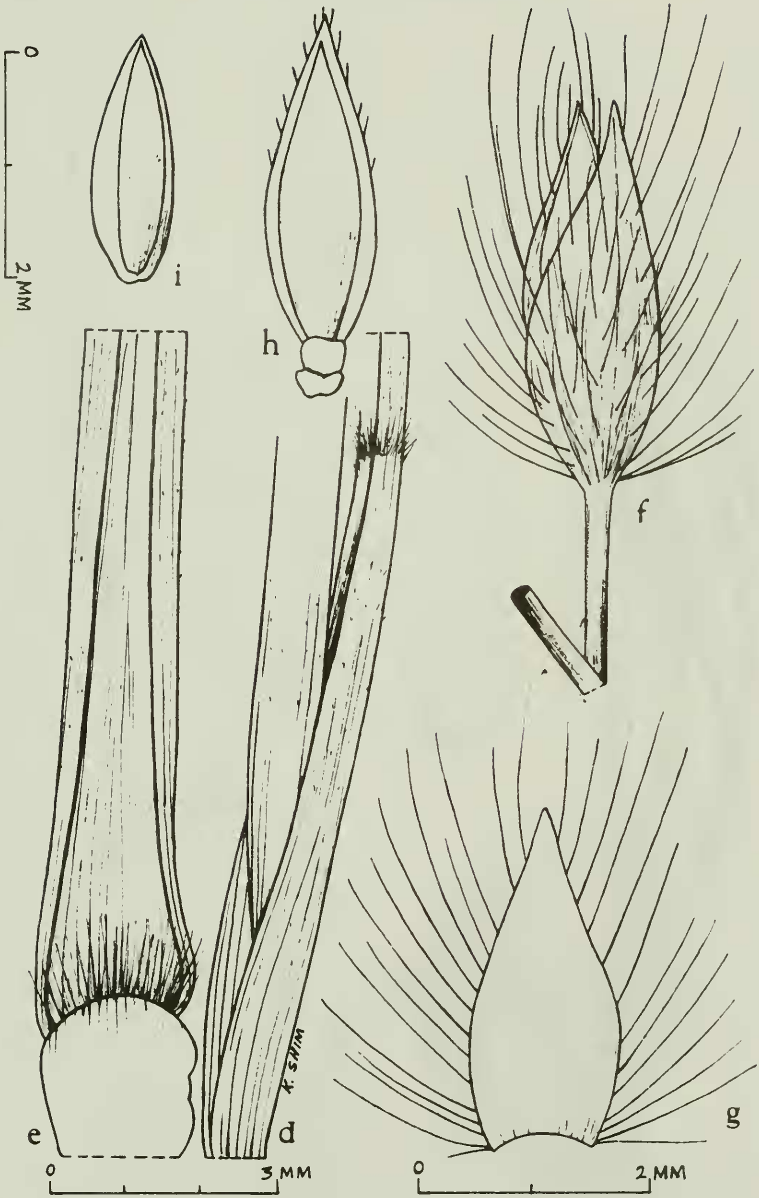


Fig. 9. Panicum lihauense St. John

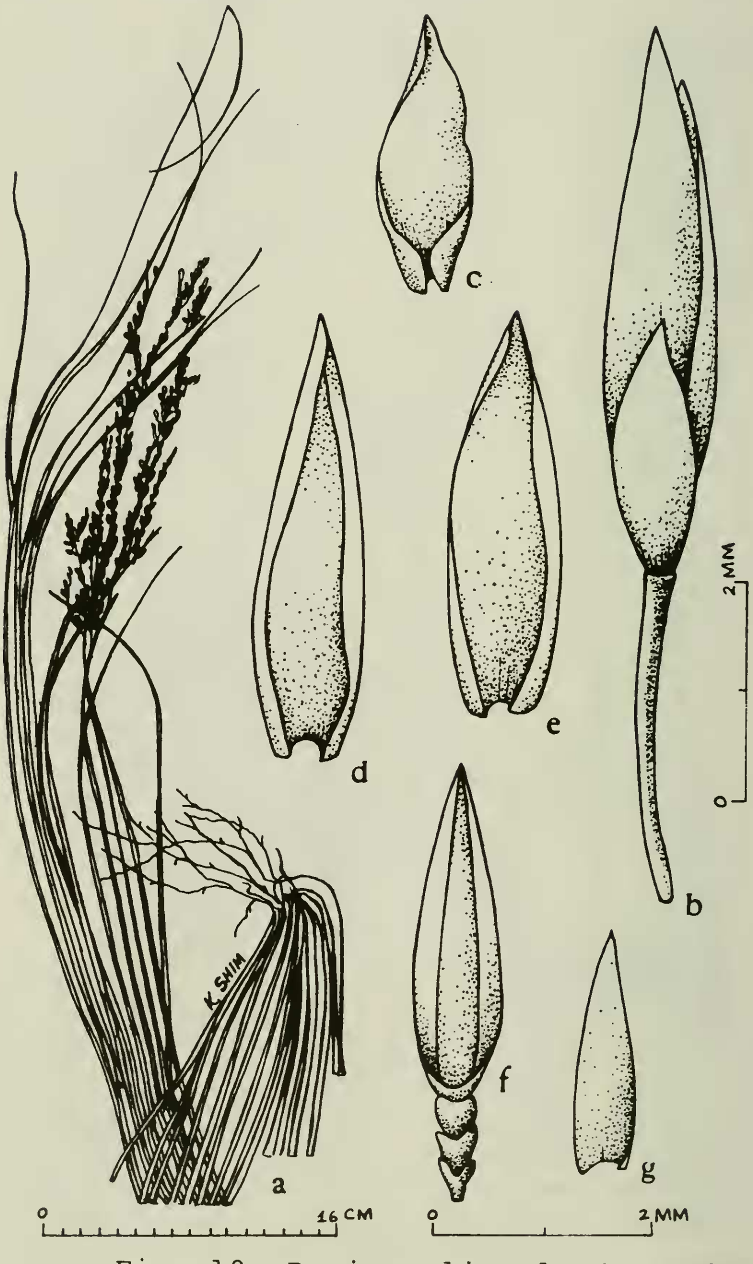


Fig. 10. Panicum lineale St. John

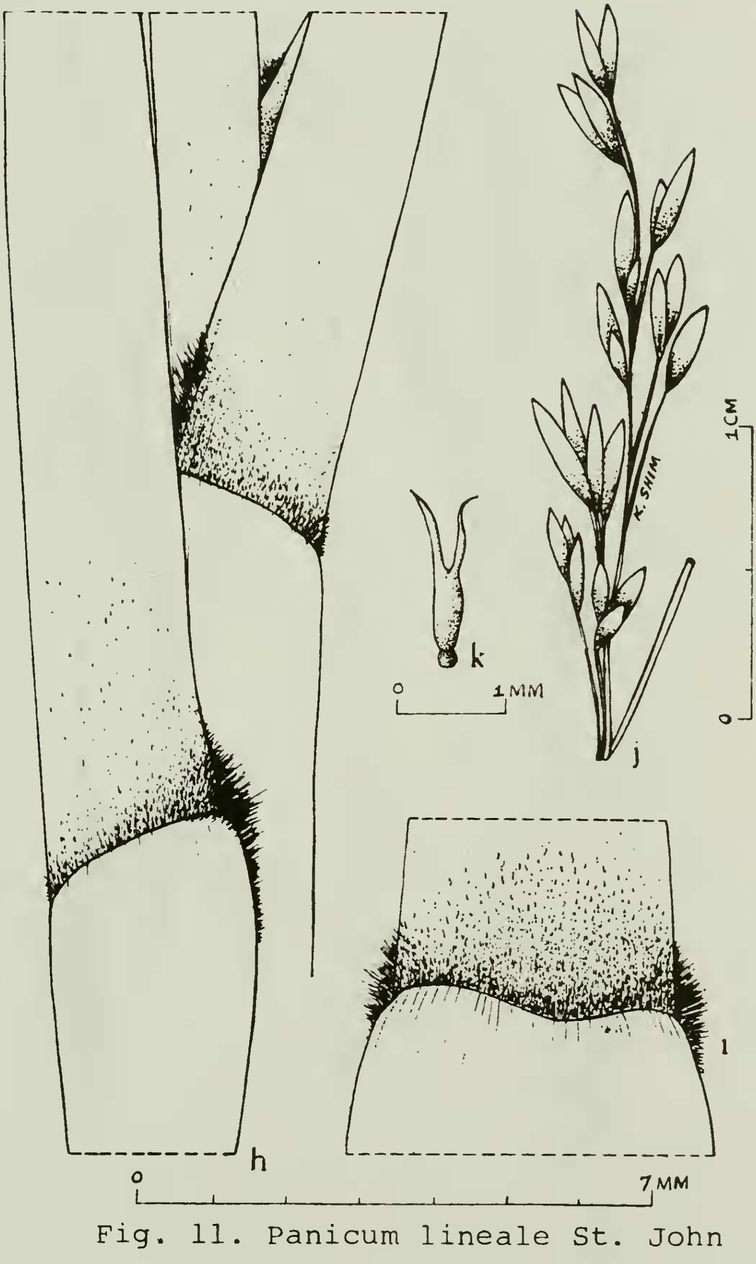


Fig. 11. Panicum lineale St. John



Fig. 12. Panicum longivaginatum
St/ John

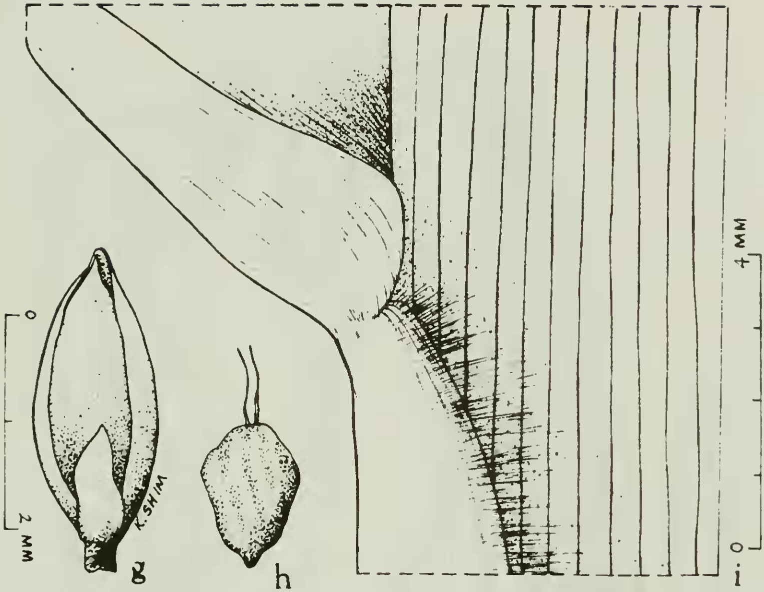


Fig. 13A. Panicum longivaginatum St. John

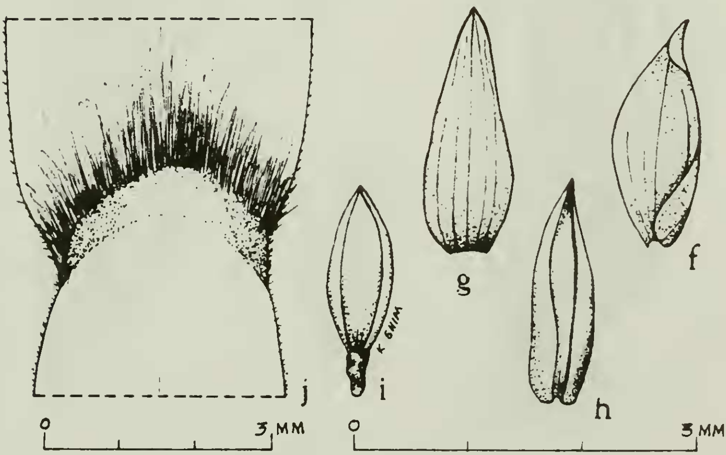


Fig. 13B. Panicum nephelophilum Gaud. var, levius St, John

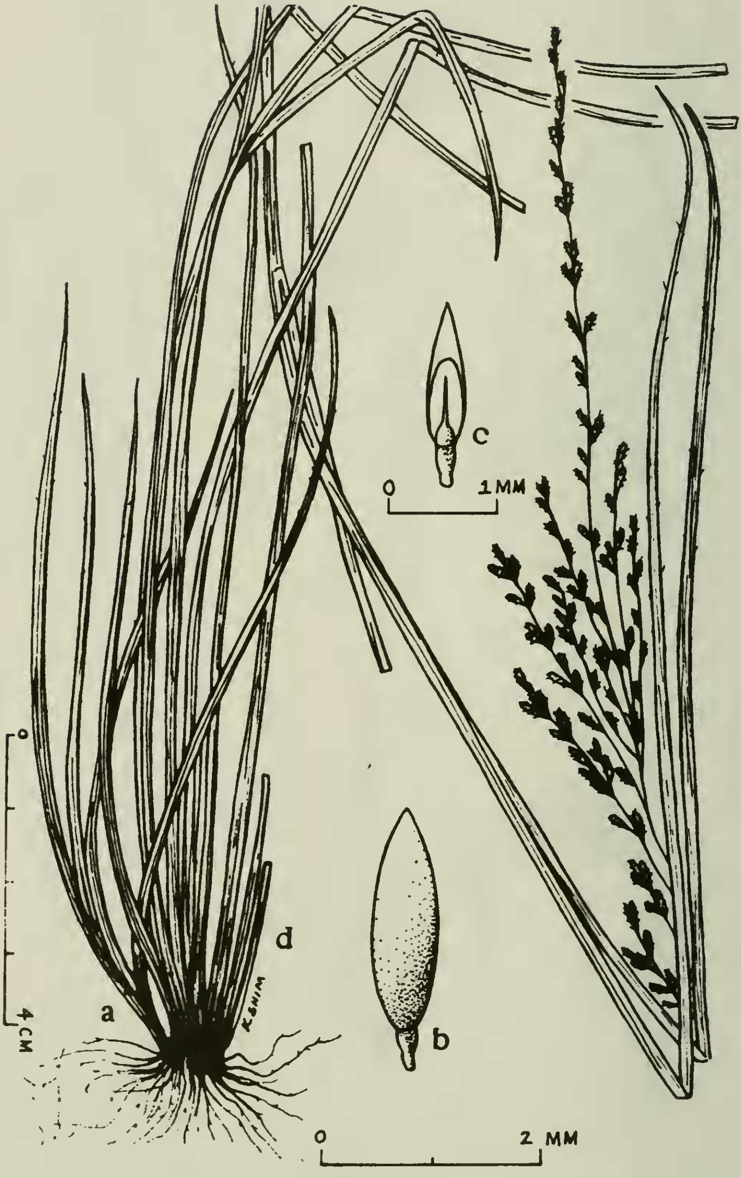


Fig. 14. Panicum mokuleiaense St. John

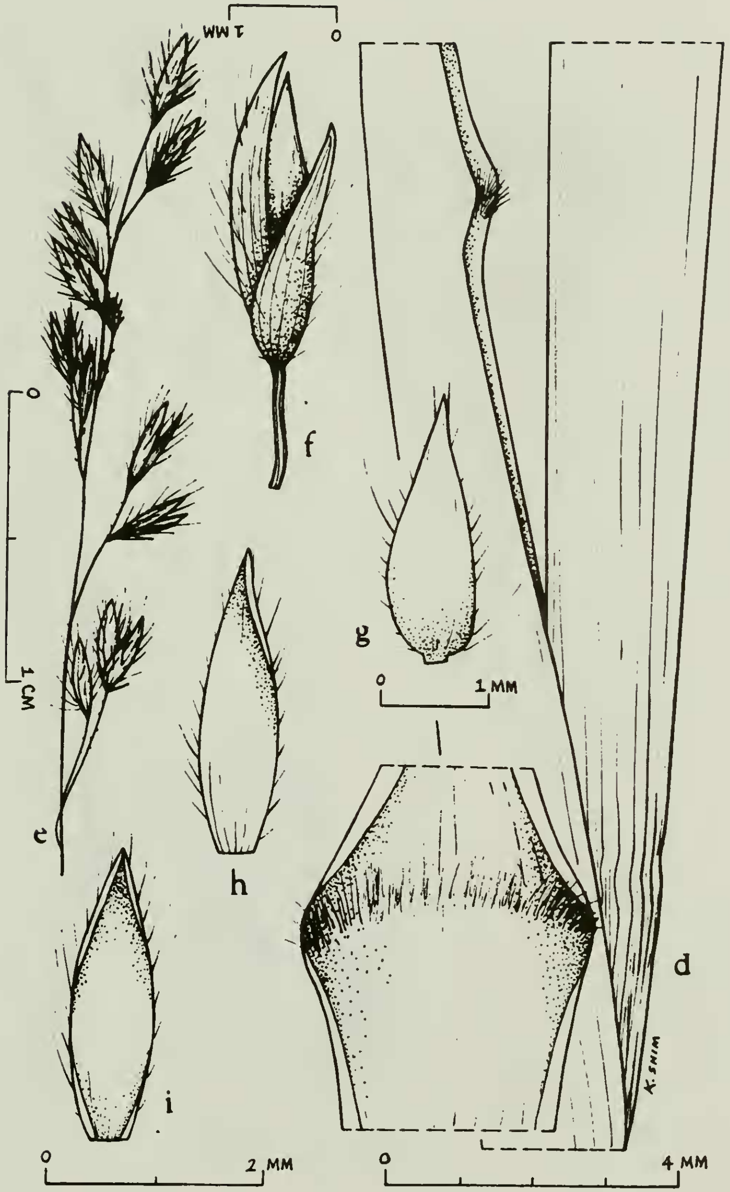


Fig. 15. Panicum mokuleiaense St. John



Fig. 16. Panicum nephilophilum Gaud.
var, levius St. John

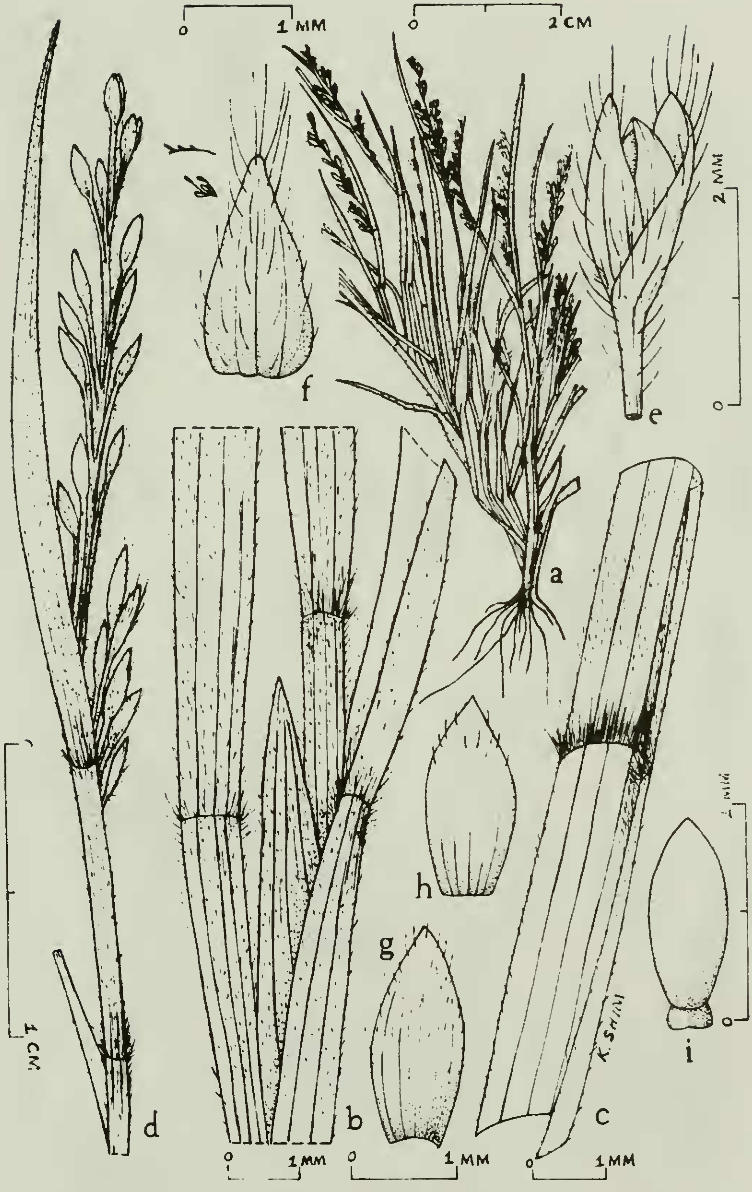


Fig. 17. Panicum ninoleense St. John

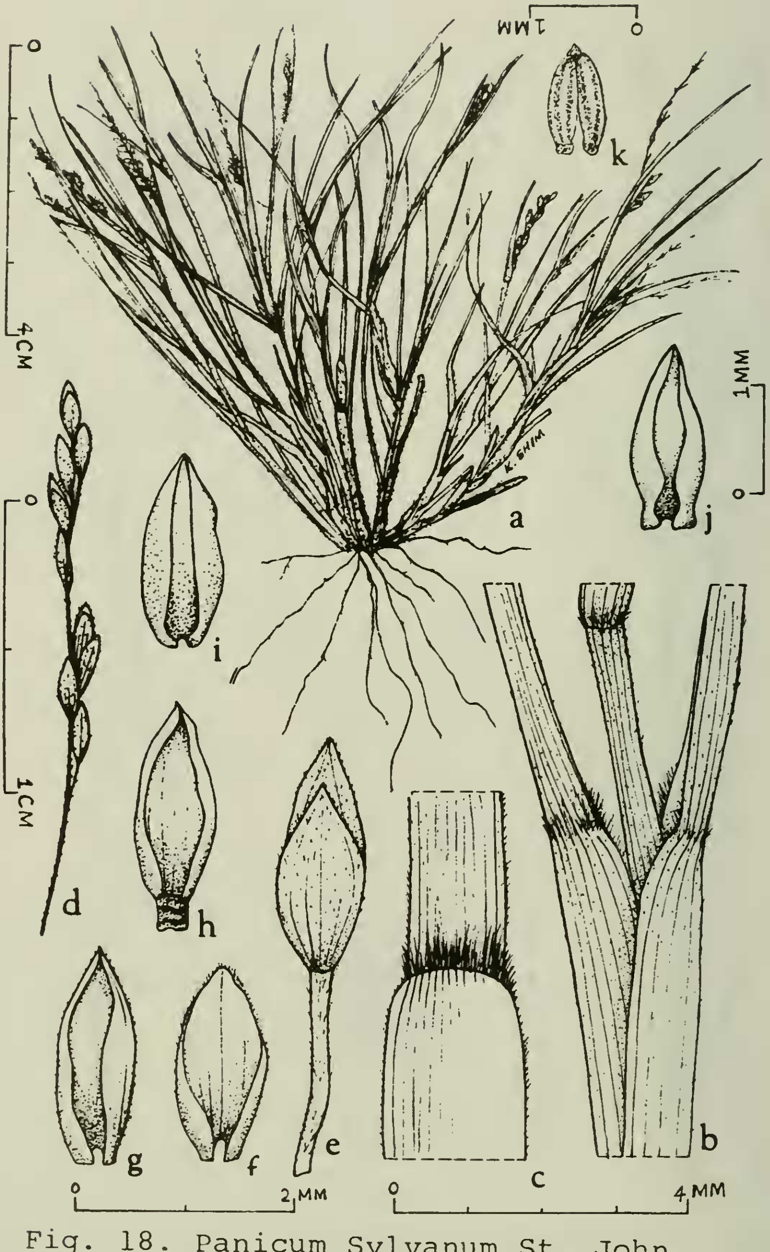


Fig. 18. Panicum Sylvanum St. John

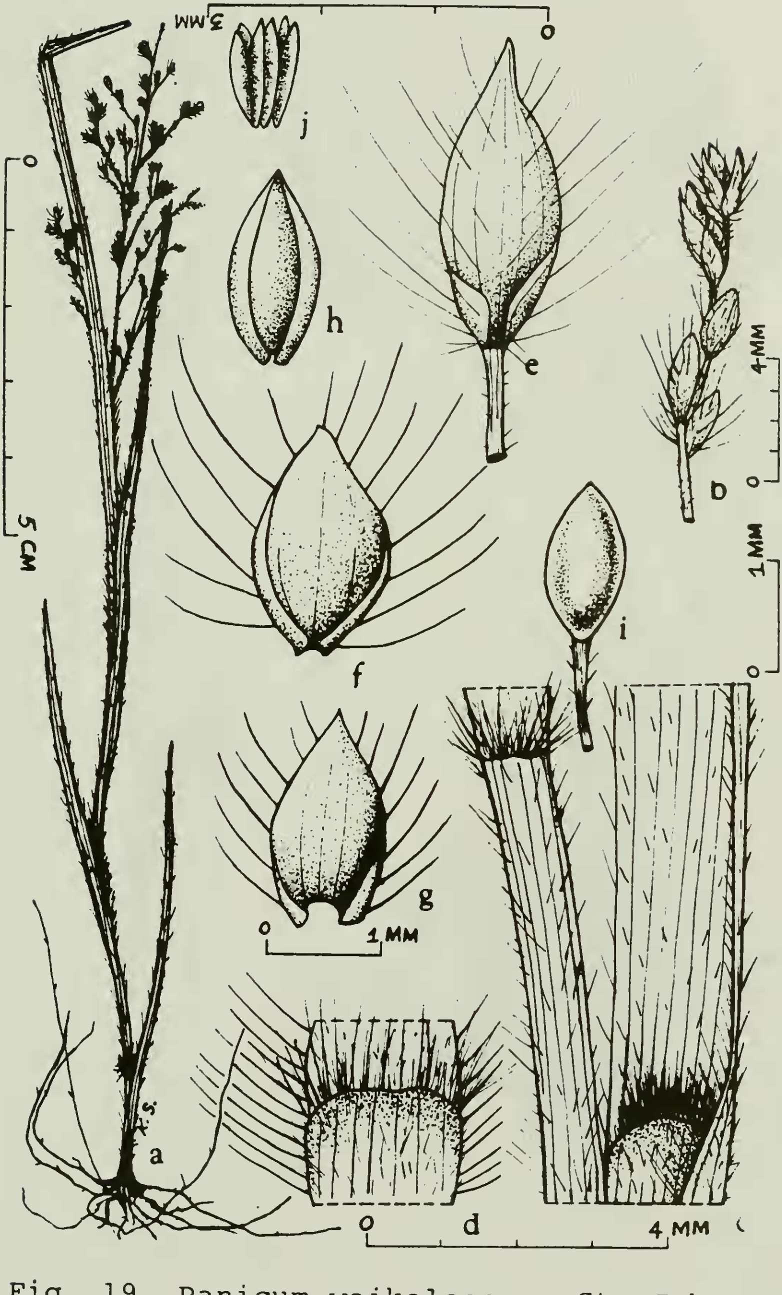


Fig. 19. Panicum waikoloaense St. John

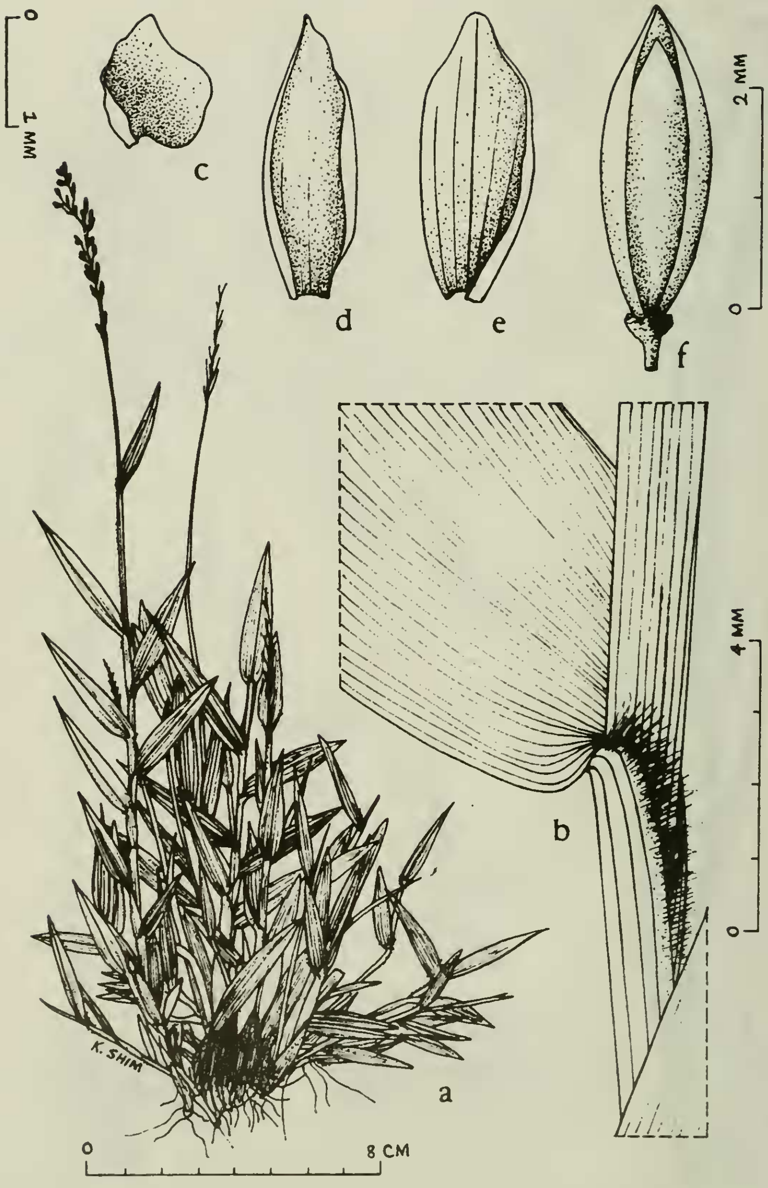


Fig. 20 Panicum Wilburii St. John

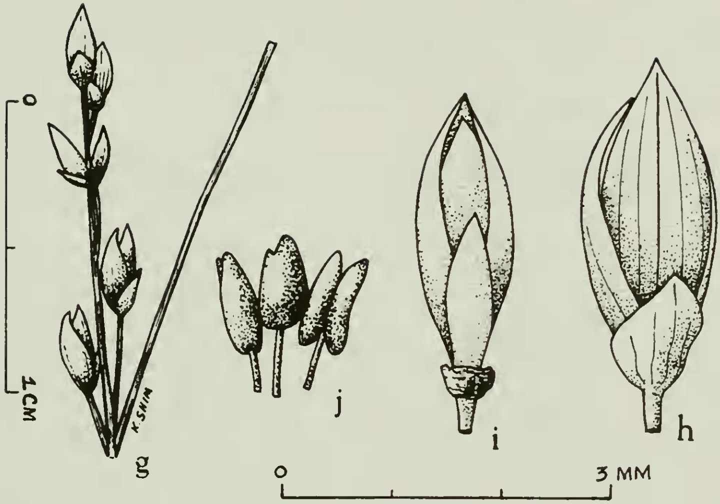


Fig. 21. Panicum Wilburii St. John